



**Aalborg Universitet**

**AALBORG UNIVERSITY**  
DENMARK

## **Department of Civil Engineering**

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**NEWS  
AND  
FIGURES  
2013**

# DEPARTMENT OF CIVIL ENGINEERING



**DEPARTMENT OF CIVIL ENGINEERING**  
AALBORG UNIVERSITY

COLOPHON

TITLE:

**DEPARTMENT OF CIVIL ENGINEERING,  
NEWS AND FIGURES 2013**

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# WELCOME

2013 was another busy year for our department where we had to run fast in order to keep up with the growth that we continue to experience in terms of number of students, teaching activities and externally funded projects.

During the year, we welcomed several new employees and we reorganized our internal structure as we were joined by the Traffic Research Group who will form a new division and add another branch to our research and teaching areas. Along with this, the Division of Food+Design will be incorporated into the other divisions.

We have also dedicated a lot of time to our moving plans to the main campus. I am very excited about the current plans where our new building will be a living laboratory that communicates how and with what we are working. The planning will continue next year when a temporary move to a new location will also be high on the agenda.

It is no secret that 2013 proved to be a financially challenging year for Aalborg University and so I am very proud of the fact that our department will be leaving 2013 with a satisfactory economic result. I am quite confident that this will continue in 2014.

*Peter Frigaard.*  
Peter Frigaard  
Head of department



# MEET THE MANAGEMENT



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# OUR DEPARTMENT

The Department of Civil Engineering focuses on research concentrated on developing and impacting the building sector in the future. Research and teaching are conducted in areas which centre on understanding environmental causality and planning people's physical environment. We undertake contractual research projects for government institutions as well as private companies.

Regarding both student and research projects, we are widely experienced in collaborating with external partners. We mainly collaborate with companies within the building and construction sector, and we have a profound knowledge of the demands and legislation within this area.

New projects and co-operations are always welcome as new thoughts and ideas are best developed through dialogue!

## OUR DIVISIONS

- Division of Architectural Engineering
  - Division of Food+Design
- Division of Structures, Materials and Geotechnics
- Division of Water & Soil



# DIVISION OF ARCHITECTURAL ENGINEERING

## Research field

We work with research and education in analysis, design, construction and operation of engineering systems for commercial, industrial and institutional facilities. Our main research areas are energy-efficient building design, indoor environment and building informatics.

## Research groups

- Building Informatics
- Indoor Environmental Engineering
- Strategic Research Centre on Zero Energy Buildings (ZEB)



## HEAD OF DIVISION

Kjeld Svidt

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## DIVISION OF FOOD+DESIGN

### Research field

We work with a holistic and multidisciplinary understanding of design and architecture, focusing specifically on food-related research and projects and classical architectural research.

Our Food+Design research and development projects are primarily focused on core areas such as “experience” and “health”, whereas the core research in architecture originates from architectural theory, history and praxis.

### Research groups

- Architecture & Interior
- Center for Food Science, Design and Experience



### HEAD OF DIVISION

Anna Marie Fisker

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# **DIVISION OF STRUCTURES, MATERIALS AND GEOTECHNICS**

## **Research field**

Our research field revolves around both theoretical and numerical modelling and experimental verification within the field of structural mechanics, structural materials and geotechnics.

## **Research groups**

- Advanced Structural Engineering
  - Danish Centre for Risk and Safety Management (RISK)
    - Innovative Structures
    - Offshore Foundations



## **HEAD OF DIVISION**

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## DIVISION OF WATER & SOIL

### Research field

Our research focuses on several areas including uncertainty modelling, reliability assessment and risk analysis of structures. Another major research area is modelling hydrological processes in urban areas and chemical processes in sewage systems and drinking water supply systems along with hydraulics in aquatic ecosystems.

### Research groups

- Coastal Engineering
- Geotechnical Engineering
  - Physical Geography
- Reliability and Risk Analysis
  - Structural Dynamics
- Urban Water and Environment
  - Wave Energy



### HEAD OF DIVISION

Morten Lauge Pedersen

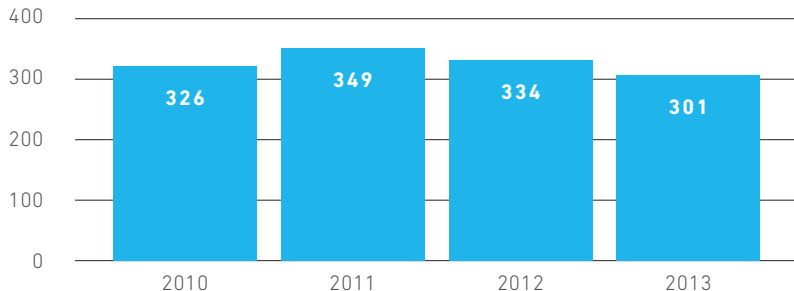
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# OUR RESEARCH

We are proud of the fact that our researchers at the Department of Civil Engineering are very productive individuals who produce a large amount of research publications each year. Below is the number of research publications that we have produced in the last couple of years. All of our research is registered in the Research Database of Aalborg University (VBN). In VBN, you can find research publications, research projects, activities, press clippings and more.

## RESEARCH PUBLICATIONS\*



\*The figures should be accepted with caution as they will typically increase as reporting is carried out continuously, including previous years.

VBN.AAU.DK



## OUR LABORATORIES

Our laboratories play a major role in our research. Numerous experiments are carried out in our laboratories, which offer the best equipment along with a knowledgeable staff.

While some equipment can be adjusted for an experiment, other equipment can be built specifically for a project or task.

### **The laboratories at the Department of Civil Engineering**

- Concrete Research
- Geotechnical Engineering
- Hydraulics and Coastal engineering
- Indoor Environmental Engineering
  - Physical Geography
  - Structural Research



### **HEAD OF LABORATORIES**

Benjamin Nordahl Nielsen

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# OUR PHD PROGRAMME

The PhD programme constitutes an important part of the research done at the department. During the three-year duration of the programme, the PhD student will take part in courses and teaching. The research project will culminate in a PhD thesis, which will be defended in public by the PhD student.

Another branch of the programme is the Industrial PhD programme. Here, the student will be employed at a company where the research will have its origin so working hours are divided between the company and the department.

In 2013, the total of enrolled PhD students was 53.



PhD students, newly enrolled			PhD degrees awarded		
2011	2012	2013	2011	2012	2013
17	14	8	4	8	12

# FINISHED PHD STUDENTS IN 2013

**Michał Zbigniew Pomianowski**, Energy Optimized Configuration of Concrete Element with PCM **Julia Fernandez Chozas**, Technical and Non-Technical Issues Towards the Commercialisation of Wave Energy Converters **Lone Stidsen**, Light Atmosphere in Hospital Wards **Jannie Jessen Nielsen**, Risk-Based Operation and Maintenance of Offshore Wind Turbines **Frederik Vildbrad Winther**, Intelligent Glazed Facades: an experimental study **Stefano Parmeggiani**, Modelling and Testing of Wave Dragon Wave Energy Converter Towards Full Scale Deployment : analysis of overtopping performance and mooring load response **Anastasia Nezhentseva**, Design of Transition Pieces for Bucket Foundations for Offshore Wind Turbines **Jørgen Harck Nørgaard**, Upgrade and Design of Coastal Structures Exposed to Climate Changes **Erik Kostandyan**, Reliability Modeling of Wind Turbines: exemplified by power converter systems as basis for O&M planning **Tenna Doktor Olsen Tvedebrink**, Architectural Theatricality : A Theoretical Discourse in Hospital Interiors & Design of Patient Eating Environments **Caspar Thrane Leth**, Improved Design Basis for Laterally Loaded Large Diameter Pile: experimental based approach **Sergio Márquez-Domínguez**, Reliability-Based Design and Planning of Inspection and Monitoring of Offshore Wind Turbines



# OUR TEACHING

Besides from our research staff, 15 % of the teaching is given by external partners. We emphasise that our students come into contact with the surrounding world via e.g. guest lectures or actual courses held by co-operation partners.

This not only creates valuable bonds between our students and potential future employers; it also facilitates knowledge sharing at a high level between the academic universe and industry to the benefit of society. You can find information about the study programmes and courses in Aalborg University's studyguide.



**STUDYGUIDE.**  
**AAU.DK**

## Graduates from the Study Board of Civil Engineering

	2010	2011	2012	2013
Bachelor degree	99	80	85	79
Master's degree	55	104	121	100
In total	154	184	206	179



# 2013 HIGHLIGHTS

## HONORARY PROFESSOR

In April, professor Jie Li from the Tongji University, Shanghai, China was given the honorary degree Dr.techn.h.c. by Aalborg University.

## RESEARCH AWARDS

SEMC 2013 Young Researcher Fellowship Awards:

- Søren Madsen, *Alternative shape of suction caisson to reduce risk of buckling under high pressure*
- Emil Sørensen, *Numerical implementation of the Hoek-Brown material model with strain hardening*

WEFTEC 2013 Harrison Prescott Eddy Wastewater Principles/Processes Medal:

- Jes Vollertsen and Asbjørn Haaning Nielsen, *Effect of Sewer Headspace Air-Flow on Hydrogen Sulfide Removal by Corroding Concrete Surfaces*

## ANNIVERSARY

Poul Henning Kirkegaard, 25 years

Sven Krabbenhøft, 25 years

## CONFERENCE

10th European Wave and Tidal Energy Conference Series (EWTEC) 2013



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